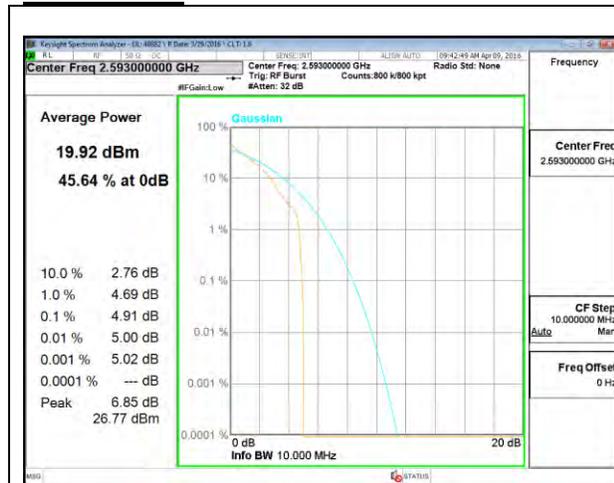
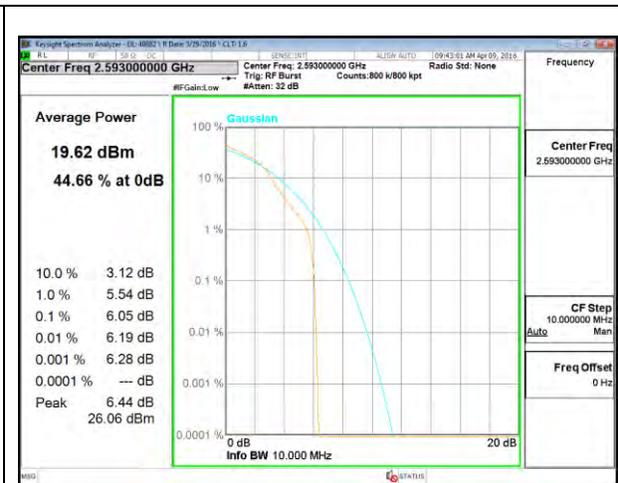


**LTE Band 41**



LTE B41 5MHz QPSK Middle Channel



LTE B41 5MHz 16QAM Middle Channel



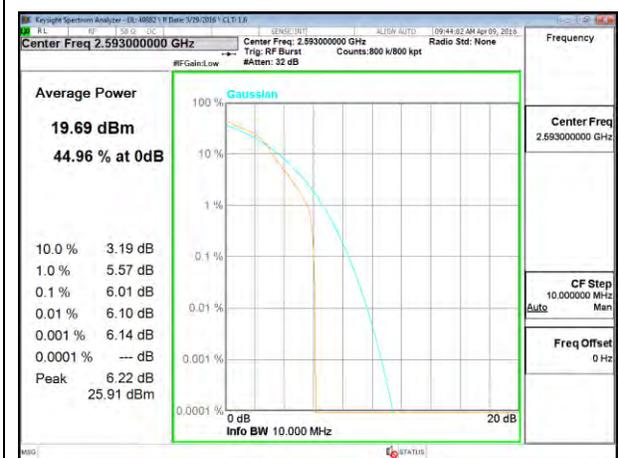
LTE B41 10MHz QPSK Middle Channel



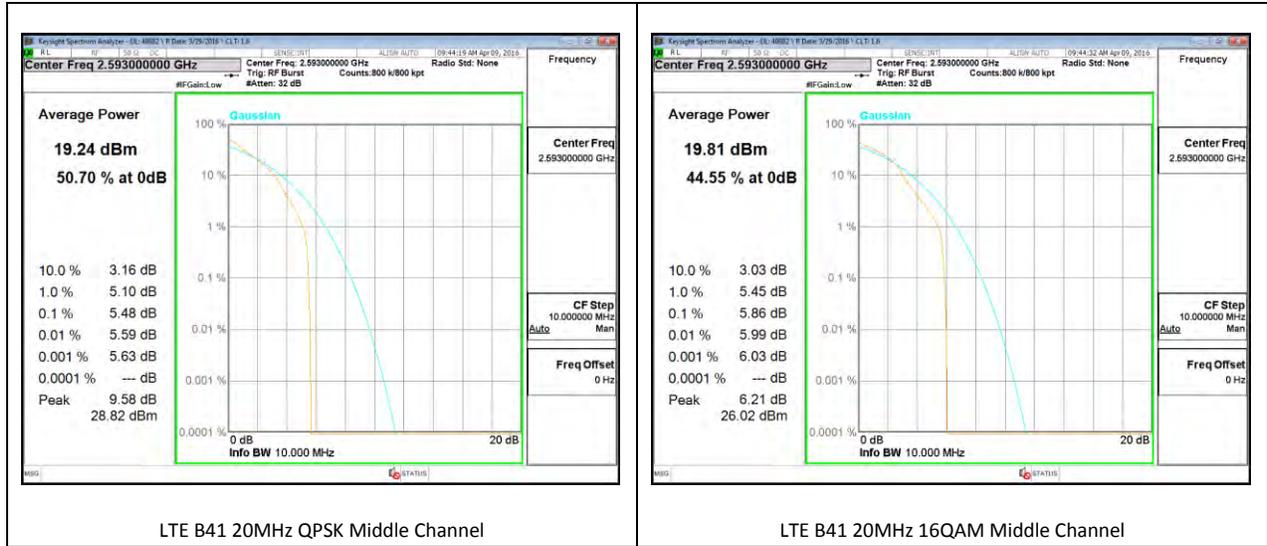
LTE B41 10MHz 16QAM Middle Channel



LTE B41 15MHz QPSK Middle Channel



LTE B41 15MHz 16QAM Middle Channel



## 10. OCCUPIED BANDWIDTH

### RULE PART(S)

FCC: §2.1049

IC: RSS-132, 4.5; RSS-133, 6.5

### LIMITS

For reporting purposes only

### TEST PROCEDURE

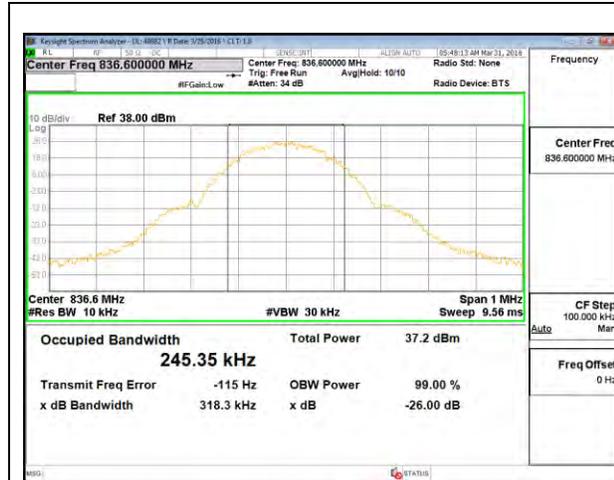
The transmitter output was connected to a calibrated coaxial cable and coupler, the other end of which was connected to a spectrum analyzer. The occupied bandwidth was measured with the spectrum analyzer at the low, middle and high channel in each band. The -26dB bandwidth was also measured and recorded.

(KDB 971168 D01 Power Meas License Digital Systems v02r02)

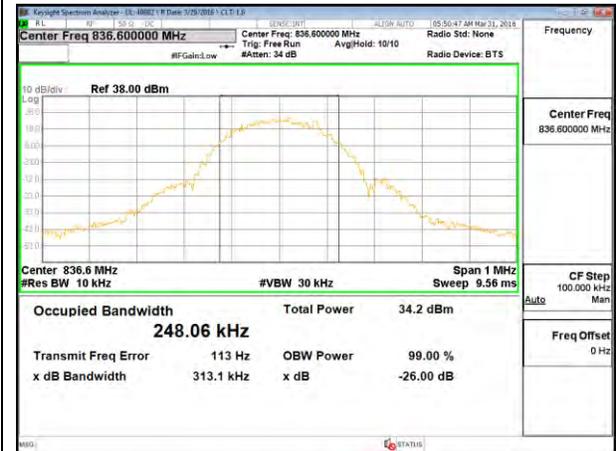
## 10.1. OCCUPIED BANDWIDTH RESULTS AND PLOTS

### GSM

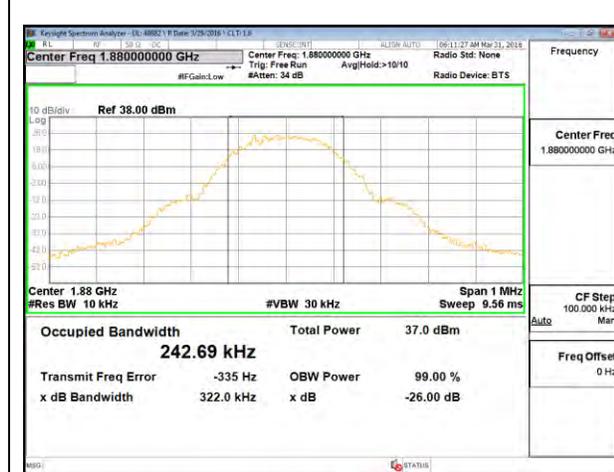
Band	Mode	Channel	f (MHz)	99% BW (kHz)	-26dB (kHz)
GSM850	GPRS	128	824.2	243.7	319.4
GSM850	GPRS	190	836.6	245.3	318.3
GSM850	GPRS	251	848.8	246.4	322.1
GSM850	EGPRS	128	824.2	239.2	308.8
GSM850	EGPRS	190	836.6	248.1	313.1
GSM850	EGPRS	251	848.8	244.3	317.2
GSM1900	GPRS	512	1850.2	247.2	319.6
GSM1900	GPRS	661	1880	242.7	322
GSM1900	GPRS	810	1909.8	248.3	314.6
GSM1900	EGPRS	512	1850.2	243.6	312.3
GSM1900	EGPRS	661	1880	240.8	316.8
GSM1900	EGPRS	810	1909.8	238.1	306.5



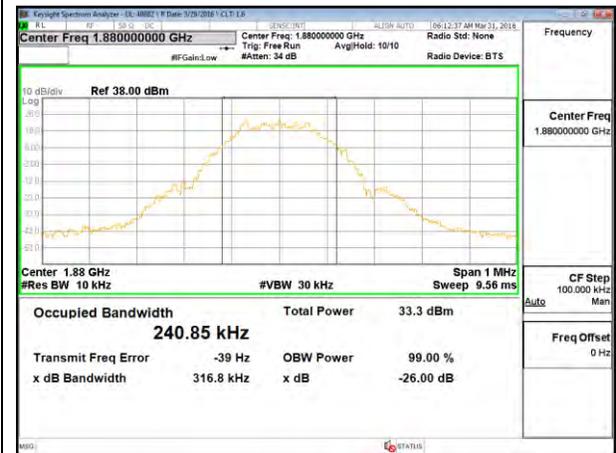
GSM850 GPRS Middle Channel



GSM850 EGPRS Middle Channel



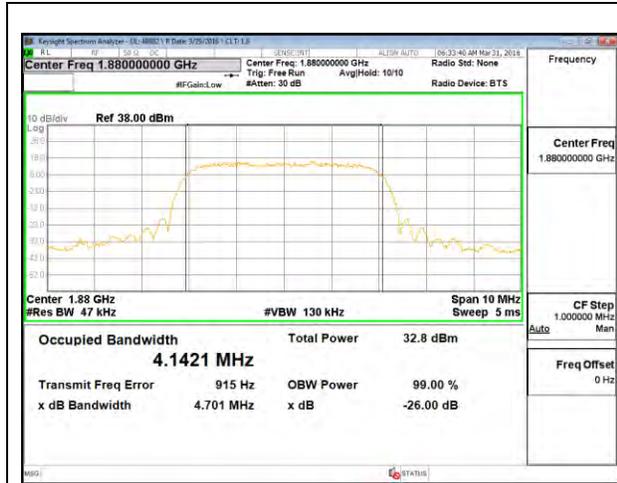
GSM1900 GPRS Middle Channel



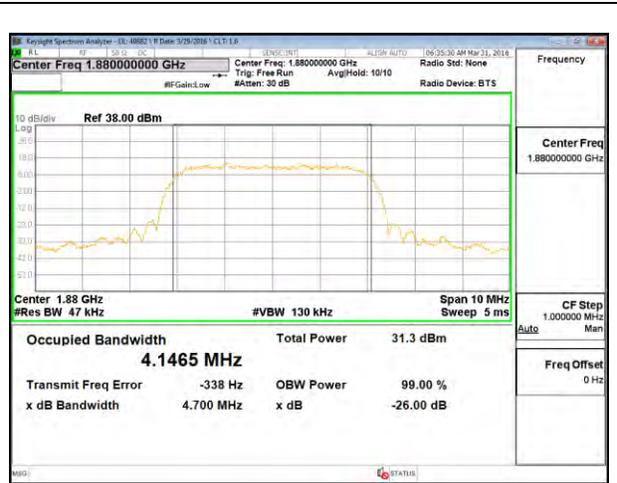
GSM1900 EGPRS Middle Channel

**WCDMA**

Band	Mode	Channel	f (MHz)	99% BW (MHz)	-26dB (MHz)
Band 2	REL99	9262	1852.4	4.148	4.675
Band 2	REL99	9400	1880	4.142	4.701
Band 2	REL99	9538	1907.6	4.13	4.699
Band 2	HSDPA	9262	1852.4	4.151	4.709
Band 2	HSDPA	9400	1880	4.146	4.7
Band 2	HSDPA	9538	1907.6	4.147	4.671
Band 5	REL99	4132	826.4	4.122	4.699
Band 5	REL99	4183	836.6	4.128	4.686
Band 5	REL99	4233	846.6	4.14	4.708
Band 5	HSDPA	4132	826.4	4.122	4.691
Band 5	HSDPA	4183	836.6	4.122	4.694
Band 5	HSDPA	4233	846.6	4.135	4.687



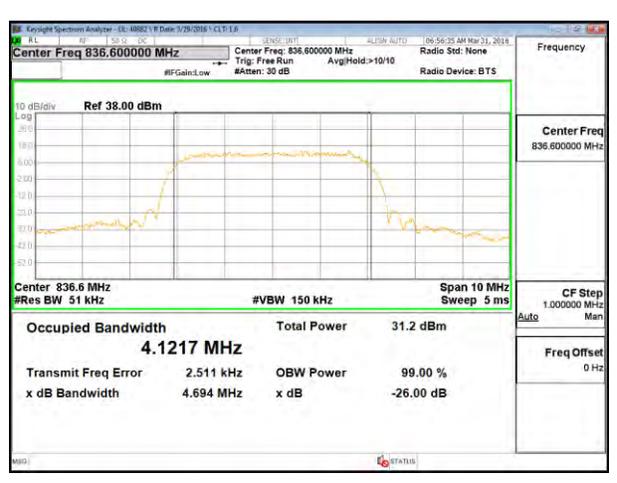
B2 REL99 Middle Channel



B2 HSDPA Middle Channel



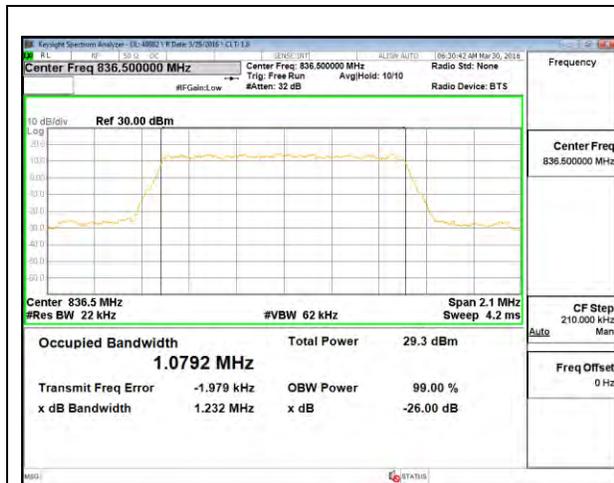
B5 REL99 Middle Channel



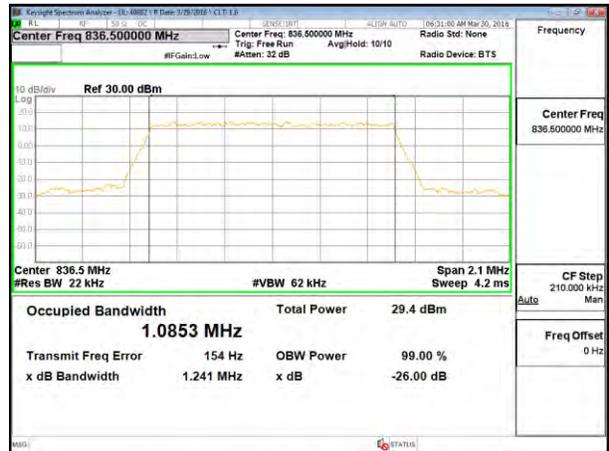
B5 HSDPA Middle Channel

**LTE Band 5**

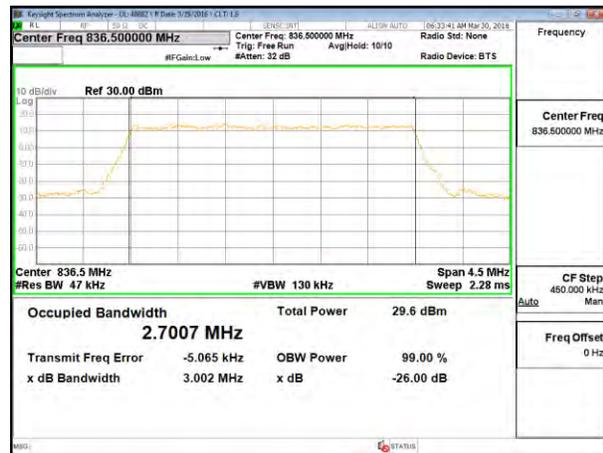
BW(MHz)	Mode	RB/RB Size	f (MHz)	99% BW (MHz)	-26dB BW (MHz)
1.4	QPSK	6/0	824.7	1.09	1.24
1.4	QPSK	6/0	836.5	1.08	1.23
1.4	QPSK	6/0	848.3	1.08	1.24
1.4	16QAM	6/0	824.7	1.08	1.24
1.4	16QAM	6/0	836.5	1.08	1.24
1.4	16QAM	6/0	848.3	1.09	1.25
3	QPSK	15/0	825.5	2.7	3
3	QPSK	15/0	836.5	2.7	3
3	QPSK	15/0	847.5	2.7	2.99
3	16QAM	15/0	825.5	2.7	2.99
3	16QAM	15/0	836.5	2.69	3.02
3	16QAM	15/0	847.5	2.7	3.03
5	QPSK	25/0	826.5	4.48	4.93
5	QPSK	25/0	836.5	4.5	4.95
5	QPSK	25/0	846.5	4.49	5
5	16QAM	25/0	826.5	4.48	4.91
5	16QAM	25/0	836.5	4.5	4.97
5	16QAM	25/0	846.5	4.49	4.94
10	QPSK	50/0	829	8.96	9.75
10	QPSK	50/0	836.5	8.98	9.77
10	QPSK	50/0	844	8.94	9.75
10	16QAM	50/0	829	8.98	9.74
10	16QAM	50/0	836.5	8.95	9.82
10	16QAM	50/0	844	8.97	9.77



LTE B5 1.4MHz QPSK Middle Channel



LTE B5 1.4MHz 16QAM Middle Channel



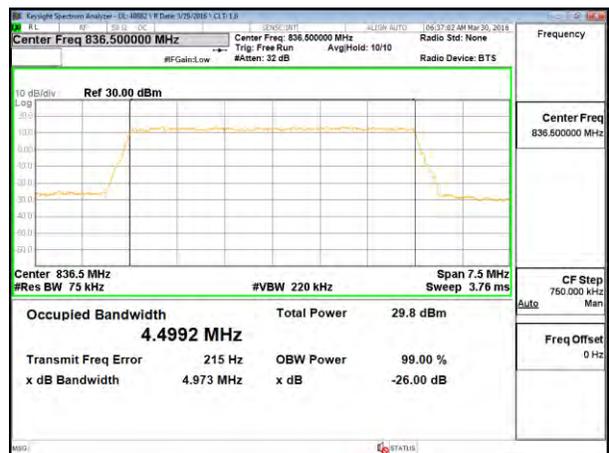
LTE B5 3MHz QPSK Middle Channel



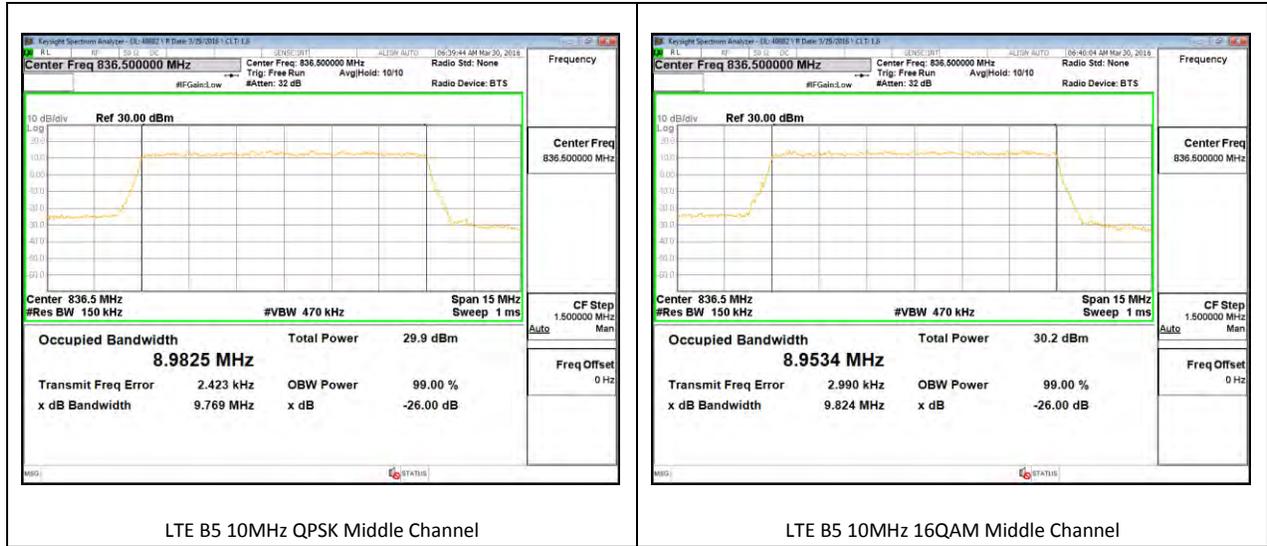
LTE B5 3MHz 16QAM Middle Channel



LTE B5 5MHz QPSK Middle Channel



LTE B5 5MHz 16QAM Middle Channel

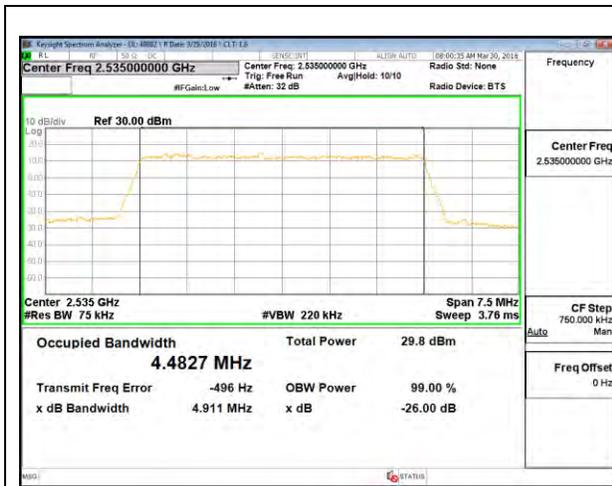


LTE B5 10MHz QPSK Middle Channel

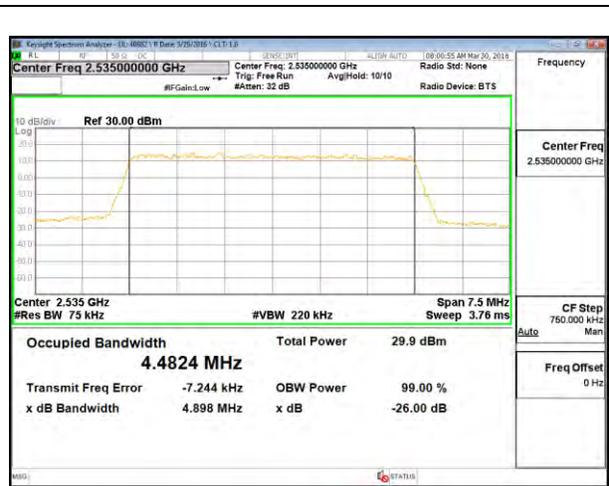
LTE B5 10MHz 16QAM Middle Channel

**LTE Band 7**

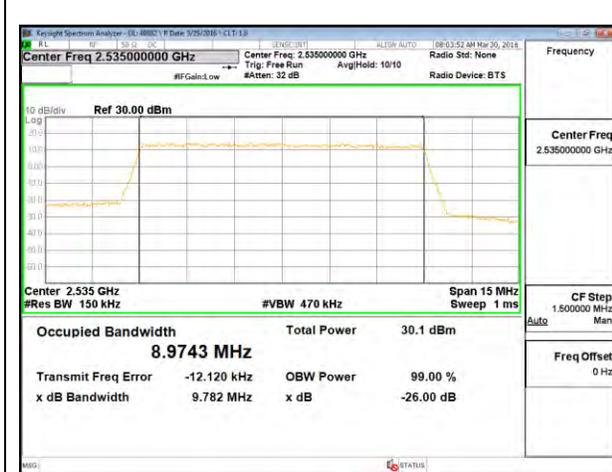
BW(MHz)	Mode	RB/RB Size	f (MHz)	99% BW (MHz)	-26dB BW (MHz)
5	QPSK	25/0	2502.5	4.5	4.94
5	QPSK	25/0	2535	4.48	4.91
5	QPSK	25/0	2567.5	4.5	4.95
5	16QAM	25/0	2502.5	4.49	4.93
5	16QAM	25/0	2535	4.48	4.9
5	16QAM	25/0	2567.5	4.5	4.96
10	QPSK	50/0	2505	8.97	9.75
10	QPSK	50/0	2535	8.97	9.78
10	QPSK	50/0	2565	8.94	9.68
10	16QAM	50/0	2505	8.97	9.74
10	16QAM	50/0	2535	8.96	9.71
10	16QAM	50/0	2565	8.96	9.72
15	QPSK	75/0	2507.5	13.44	14.57
15	QPSK	75/0	2535	13.45	14.55
15	QPSK	75/0	2562.5	13.41	14.51
15	16QAM	75/0	2507.5	13.44	14.6
15	16QAM	75/0	2535	13.45	14.66
15	16QAM	75/0	2562.5	13.38	14.46
20	QPSK	100/0	2510	17.91	19.27
20	QPSK	100/0	2535	17.97	19.35
20	QPSK	100/0	2560	17.86	19.26
20	16QAM	100/0	2510	17.92	19.3
20	16QAM	100/0	2535	17.92	19.43
20	16QAM	100/0	2560	17.84	19.33



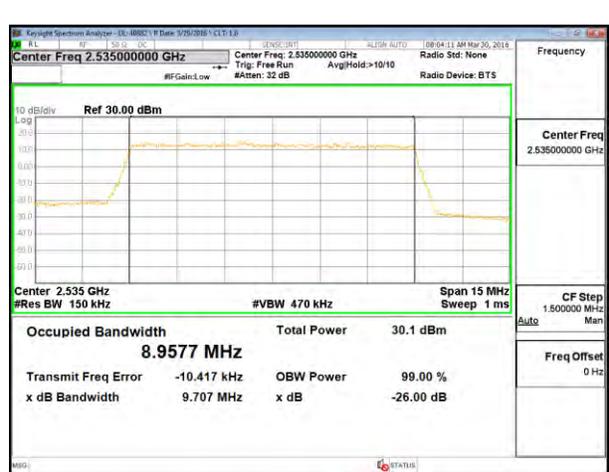
LTE B7 5MHz QPSK Middle Channel



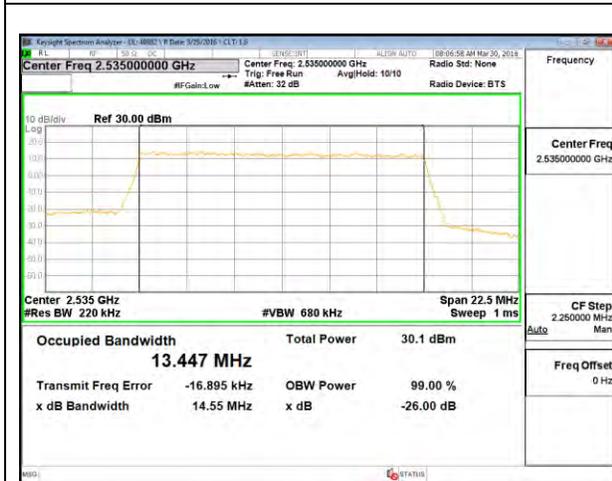
LTE B7 5MHz 16QAM Middle Channel



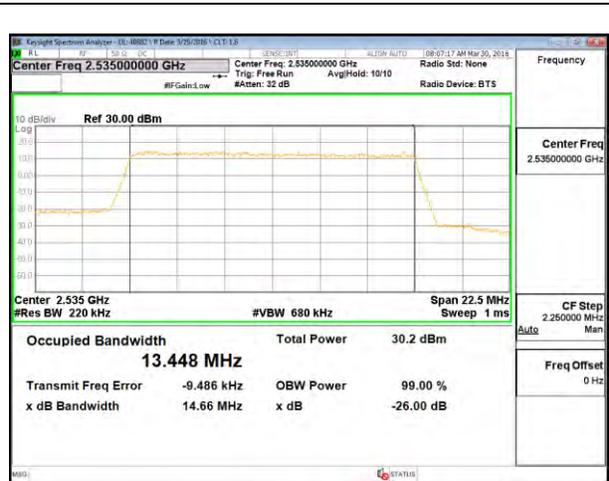
LTE B7 10MHz QPSK Middle Channel



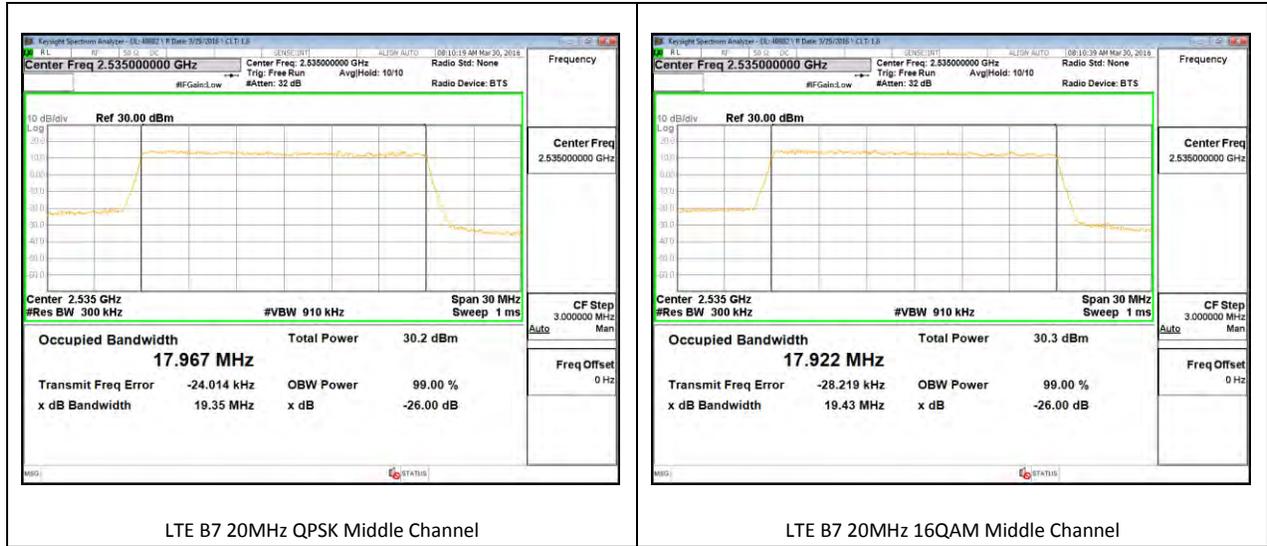
LTE B7 10MHz 16QAM Middle Channel



LTE B7 15MHz QPSK Middle Channel

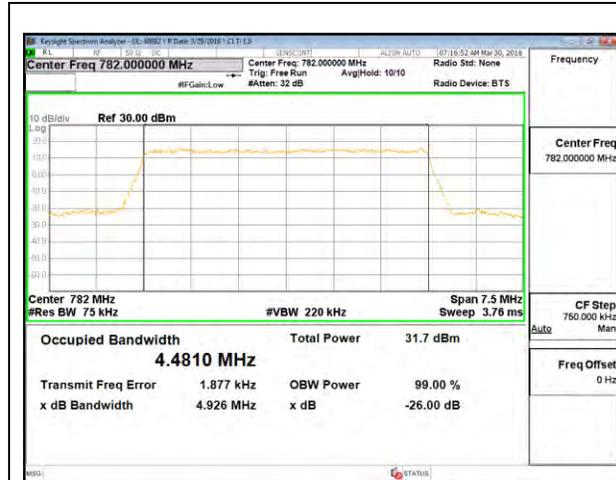


LTE B7 15MHz 16QAM Middle Channel

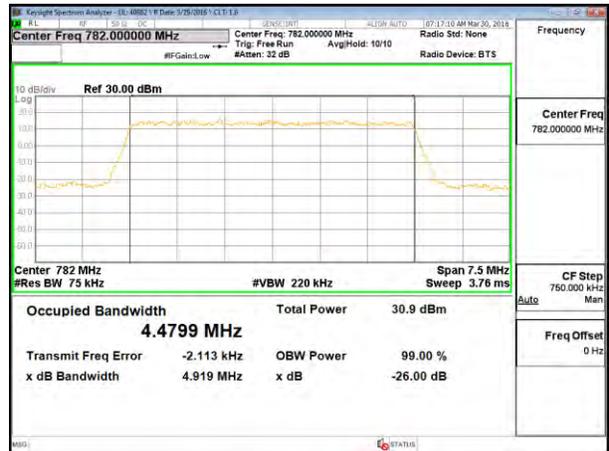


**LTE Band 13**

BW(MHz)	Mode	RB/RB Size	f (MHz)	99% BW (MHz)	-26dB BW (MHz)
5	QPSK	25/0	779.5	4.5	4.97
5	QPSK	25/0	782	4.48	4.93
5	QPSK	25/0	784.5	4.5	4.93
5	16QAM	25/0	779.5	4.49	4.94
5	16QAM	25/0	782	4.48	4.92
5	16QAM	25/0	784.5	4.5	4.96
10	QPSK	50/0	782	8.95	9.75
10	16QAM	50/0	782	8.98	9.69



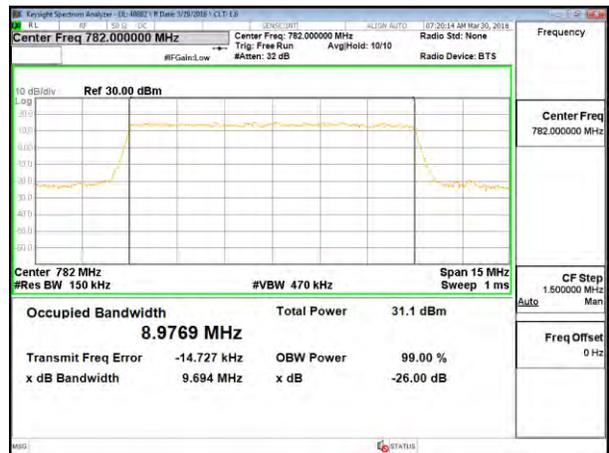
LTE B13 5MHz QPSK Middle Channel



LTE B13 5MHz 16QAM Middle Channel



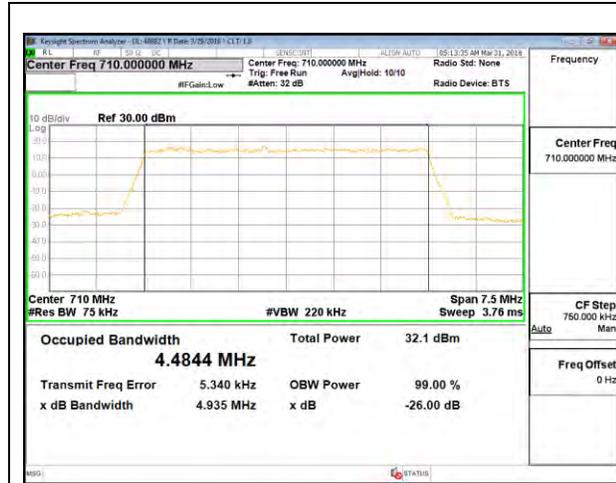
LTE B13 10MHz QPSK Middle Channel



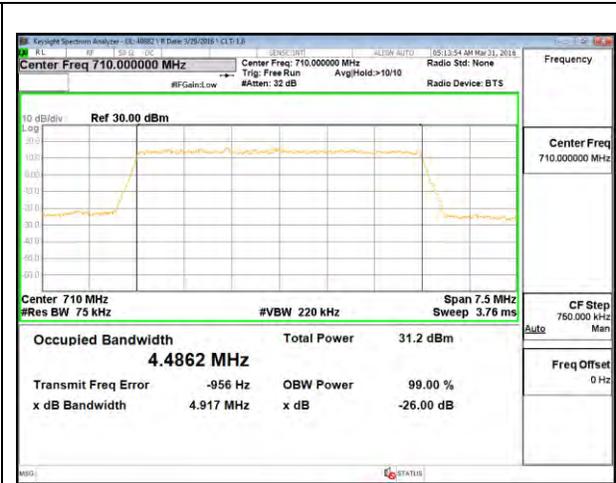
LTE B13 10MHz 16QAM Middle Channel

**LTE Band 17**

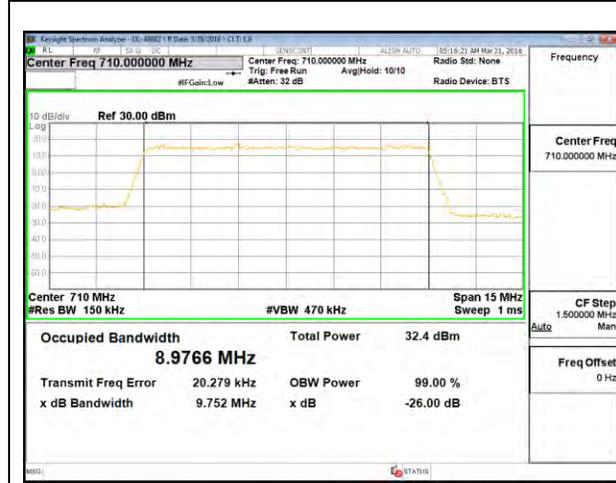
BW(MHz)	Mode	RB/RB Size	f (MHz)	99% BW (MHz)	-26dB BW (MHz)
5	QPSK	25/0	706.5	4.49	4.97
5	QPSK	25/0	710	4.48	4.93
5	QPSK	25/0	713.5	4.5	4.93
5	16QAM	25/0	706.5	4.49	4.93
5	16QAM	25/0	710	4.49	4.92
5	16QAM	25/0	713.5	4.5	4.95
10	QPSK	50/0	709	8.96	9.74
10	QPSK	50/0	710	8.98	9.75
10	QPSK	50/0	711	8.96	9.69
10	16QAM	50/0	709	8.98	9.77
10	16QAM	50/0	710	8.96	9.76
10	16QAM	50/0	711	9	9.8



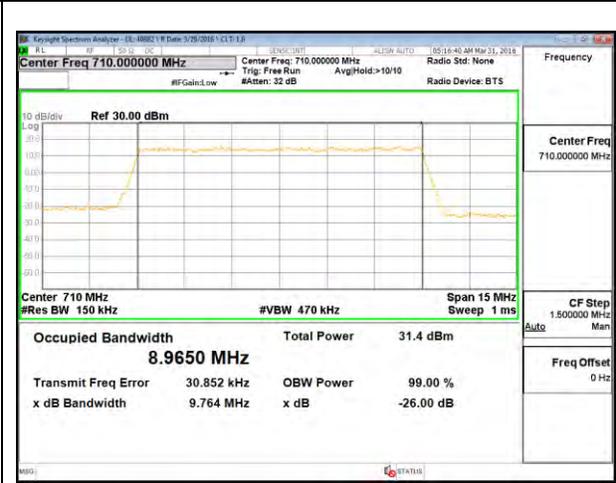
LTE B17 5MHz QPSK Middle Channel



LTE B17 5MHz 16QAM Middle Channel



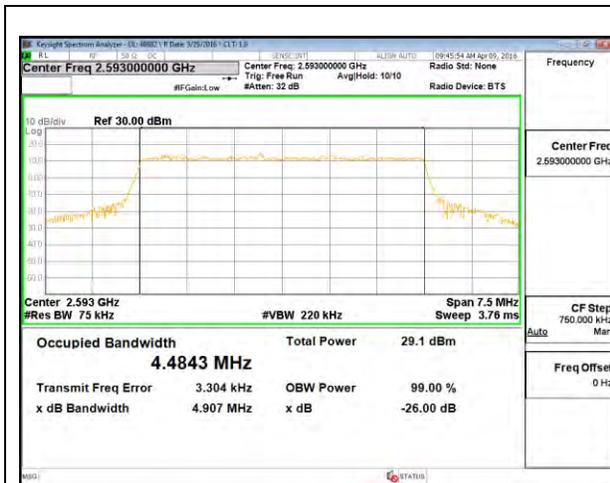
LTE B17 10MHz QPSK Middle Channel



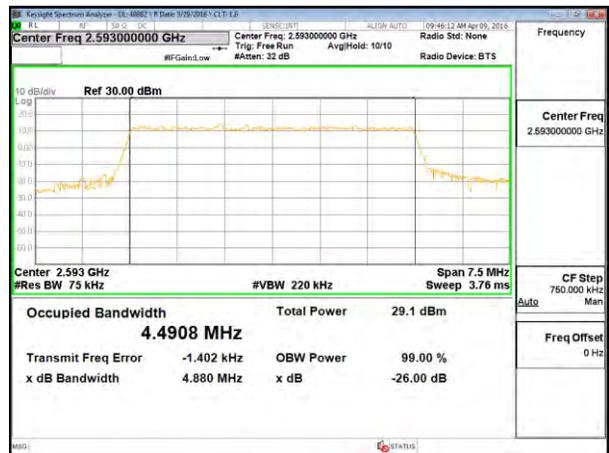
LTE B17 10MHz 16QAM Middle Channel

**LTE Band 41**

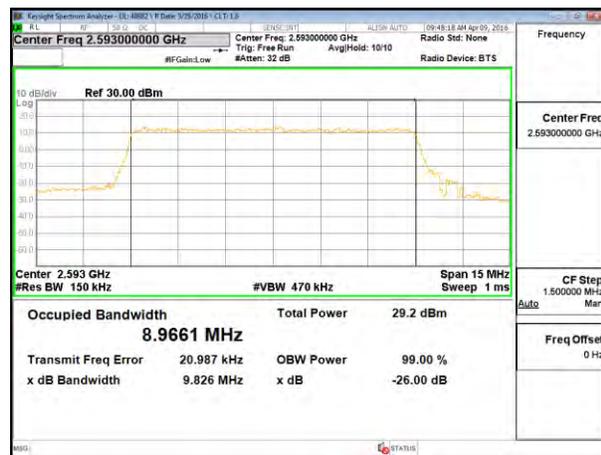
BW(MHz)	Mode	RB/RB Size	f (MHz)	99% BW (MHz)	-26dB BW (MHz)
5	QPSK	25/0	2498.5	4.49	4.89
5	QPSK	25/0	2593	4.48	4.91
5	QPSK	25/0	2687.5	4.5	4.94
5	16QAM	25/0	2498.5	4.49	4.92
5	16QAM	25/0	2593	4.49	4.88
5	16QAM	25/0	2687.5	4.49	4.97
10	QPSK	50/0	2501	8.95	9.73
10	QPSK	50/0	2593	8.97	9.83
10	QPSK	50/0	2685	8.97	9.73
10	16QAM	50/0	2501	9.01	10.15
10	16QAM	50/0	2593	8.99	9.85
10	16QAM	50/0	2685	8.95	9.84
15	QPSK	75/0	2503.5	13.44	14.68
15	QPSK	75/0	2593	13.47	14.91
15	QPSK	75/0	2682.5	13.45	14.7
15	16QAM	75/0	2503.5	13.46	14.7
15	16QAM	75/0	2593	13.44	15.64
15	16QAM	75/0	2682.5	13.45	14.52
20	QPSK	100/0	2506	17.95	19.97
20	QPSK	100/0	2593	17.94	19.3
20	QPSK	100/0	2680	17.91	19.38
20	16QAM	100/0	2506	17.94	19.84
20	16QAM	100/0	2593	17.94	20.06
20	16QAM	100/0	2680	17.92	19.88



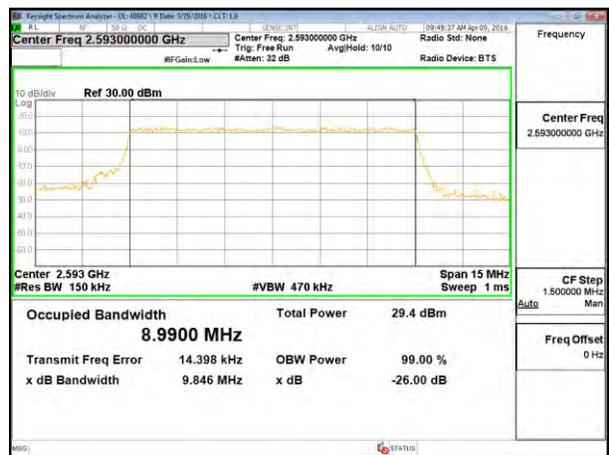
LTE B41 5MHz QPSK Middle Channel



LTE B41 5MHz 16QAM Middle Channel



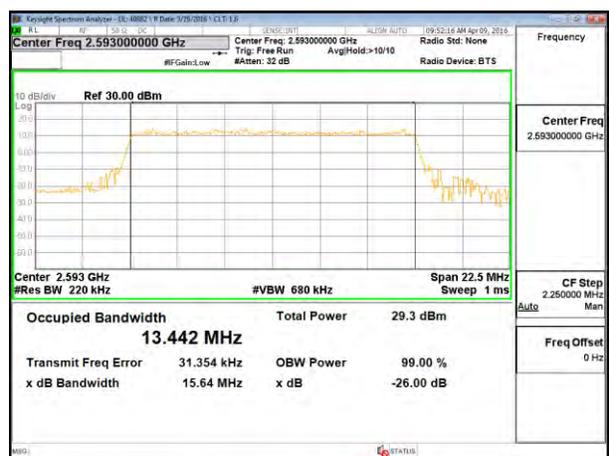
LTE B41 10MHz QPSK Middle Channel



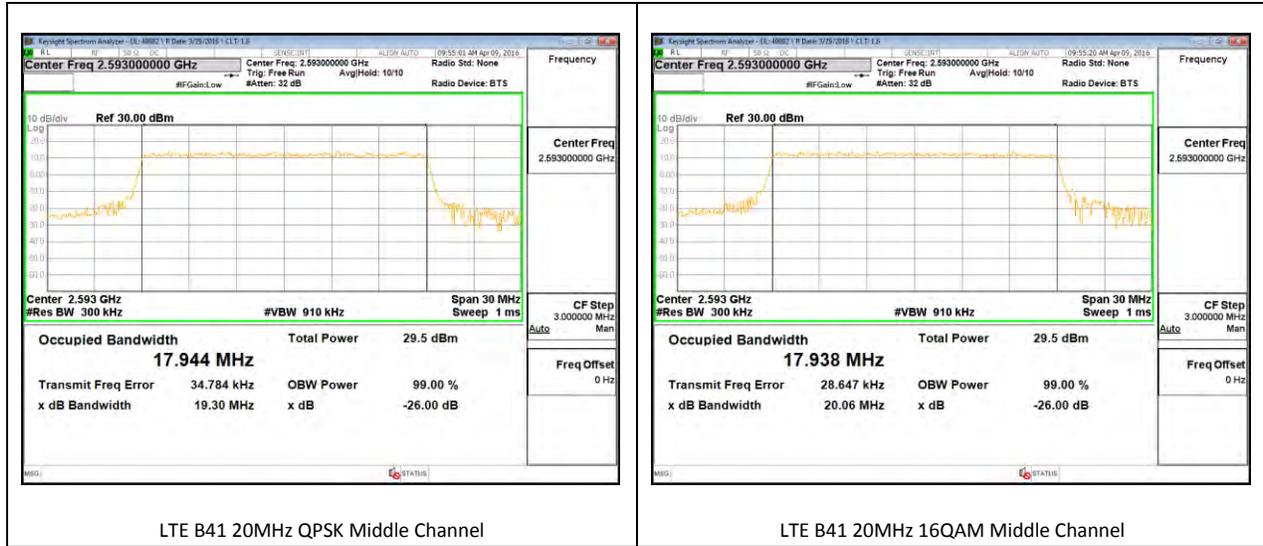
LTE B41 10MHz 16QAM Middle Channel



LTE B41 15MHz QPSK Middle Channel



LTE B41 15MHz 16QAM Middle Channel



## 11. BAND EDGE EMISSIONS

### RULE PART(S)

FCC: §22.359, §24.238 and §27.53

### LIMITS

Part 24.238(a) & Part 22.917(a) The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least  $43 + 10 \log (P)$  dB.

Part 27: (m)(4) (4) For mobile digital stations, the attenuation factor shall be not less than  $40 + 10 \log (P)$  dB on all frequencies between the channel edge and 5 megahertz from the channel edge,  $43 + 10 \log (P)$  dB on all frequencies between 5 megahertz and X megahertz from the channel edge, and  $55 + 10 \log (P)$  dB on all frequencies more than X megahertz from the channel edge, where X is the greater of 6 megahertz or the actual emission bandwidth as defined in paragraph (m)(6) of this section. In addition, the attenuation factor shall not be less than  $43 + 10 \log (P)$  dB on all frequencies between 2490.5 MHz and 2496 MHz and  $55 + 10 \log (P)$  dB at or below 2490.5 MHz. Mobile Satellite Service licensees operating on frequencies below 2495 MHz may also submit a documented interference complaint against BRS licensees operating on channel BRS Channel 1 on the same terms and conditions as adjacent channel BRS or EBS licensees.

### TEST PROCEDURE

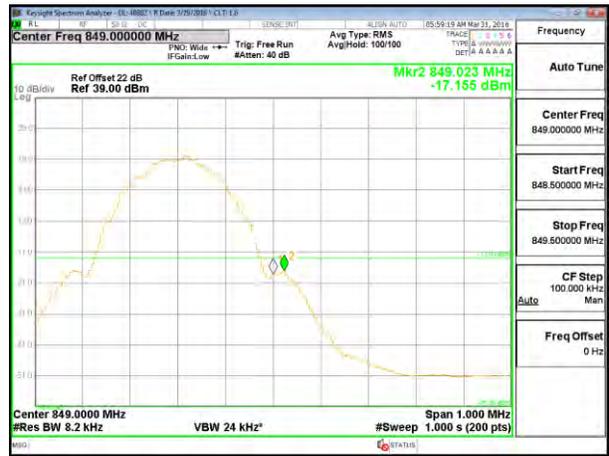
Per KDB 971168 D01 Power Meas License Digital Systems v02r02

The transmitter output was connected to an Agilent 8960 or a CMW500 Test Set and configured to operate at maximum power. The band edge emissions were measured at the required operating frequencies in each band on the Spectrum Analyzer.

# 11.1. BAND EDGE PLOTS GSM



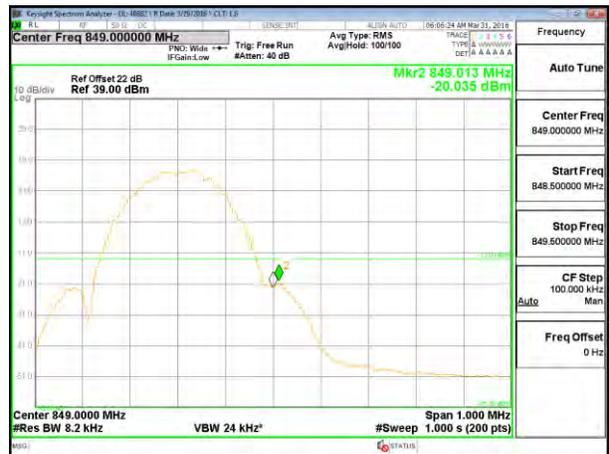
GSM850 GPRS Low Channel



GSM850 GPRS High Channel



GSM850 EGPRS Low Channel



GSM850 EGPRS High Channel



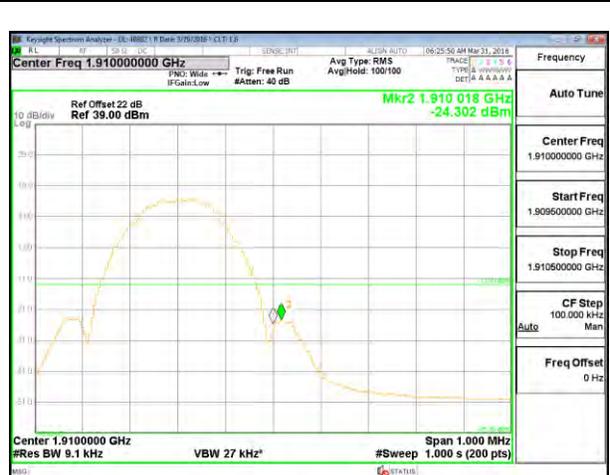
GSM1900 GPRS Low Channel



GSM1900 GPRS High Channel

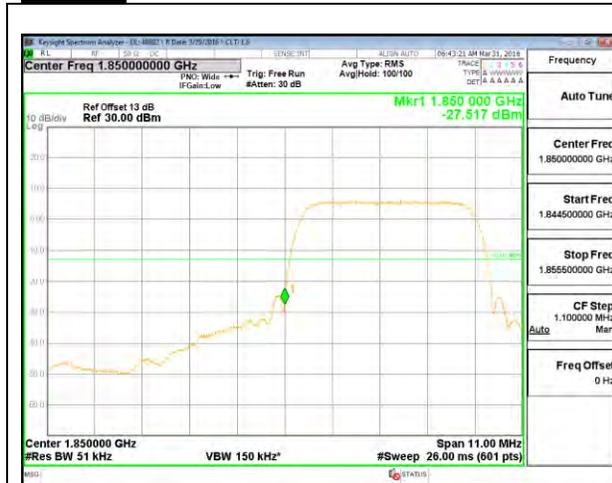


GSM1900 EGPRS Low Channel

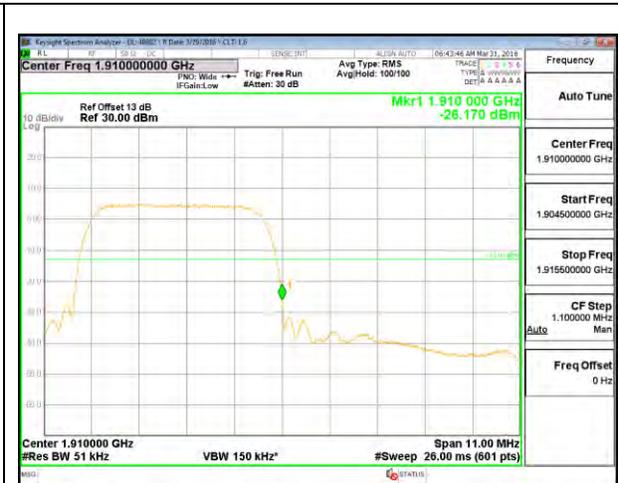


GSM1900 EGPRS High Channel

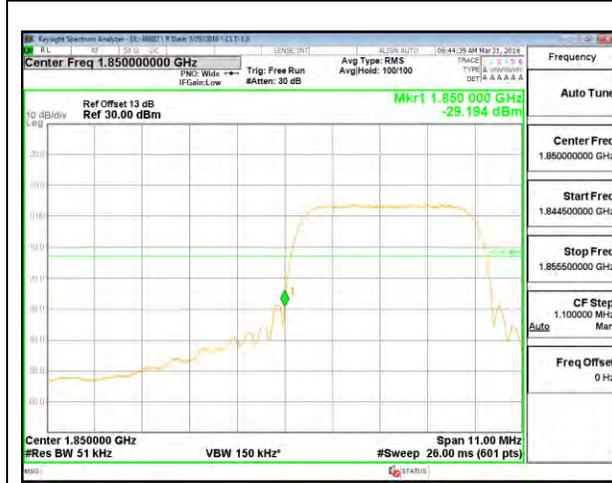
**WCDMA**



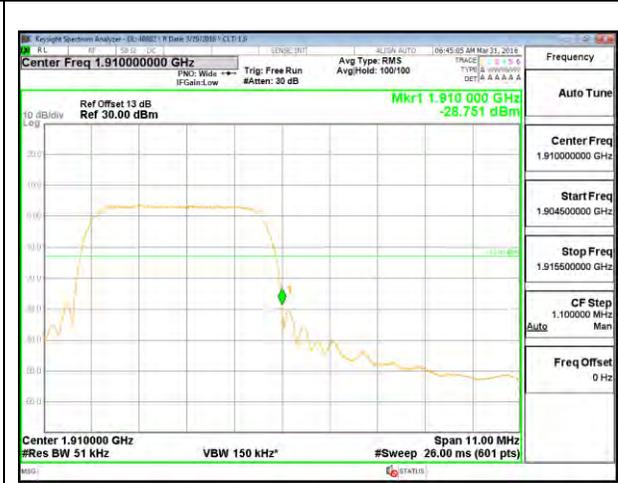
B2 REL99 Low Channel



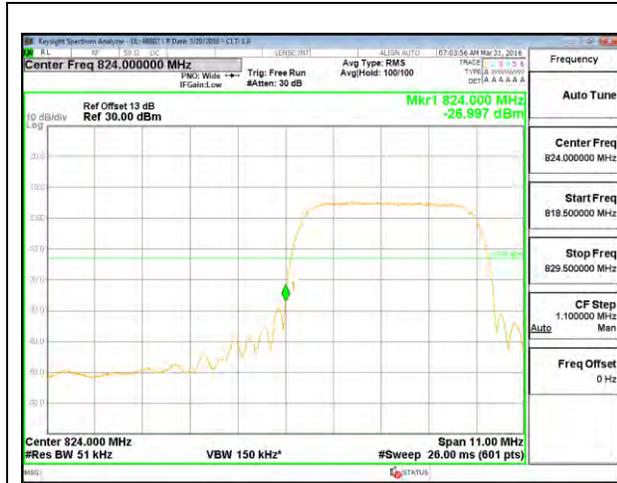
B2 REL99 High Channel



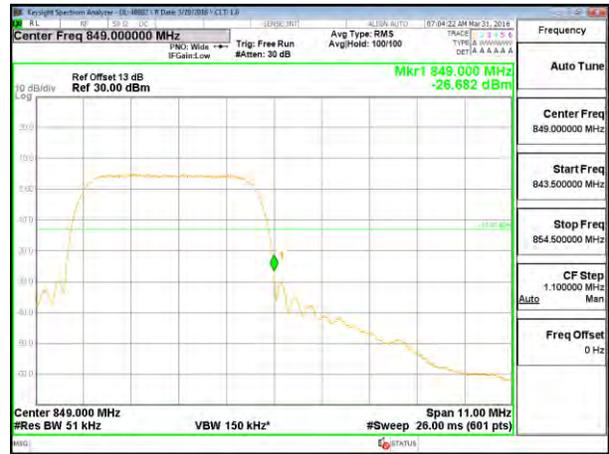
B2 HSDPA Low Channel



B2 HSDPA High Channel



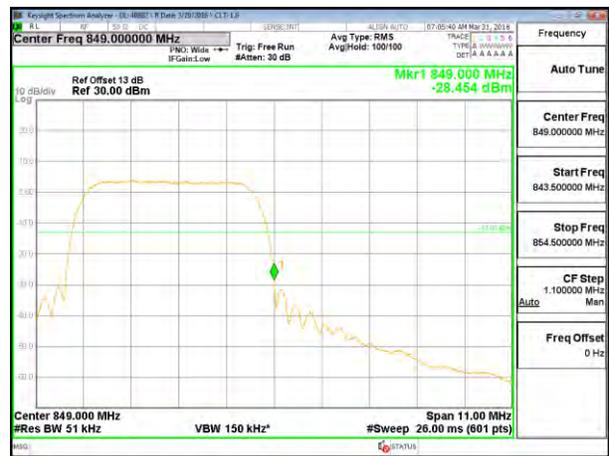
B5 REL99 Low Channel



B5 REL99 High Channel

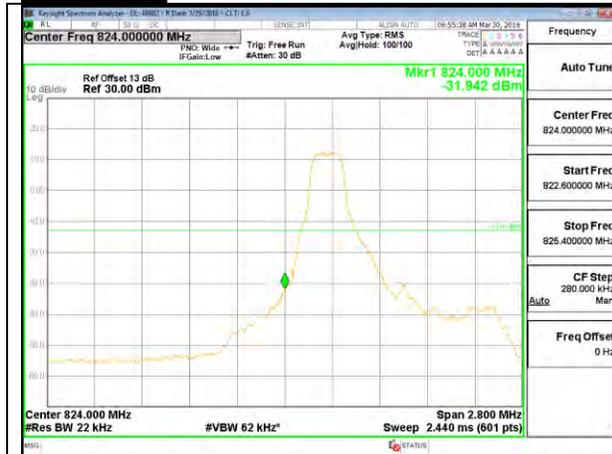


B5 HSDPA Low Channel



B5 HSDPA High Channel

**LTE Band 5**



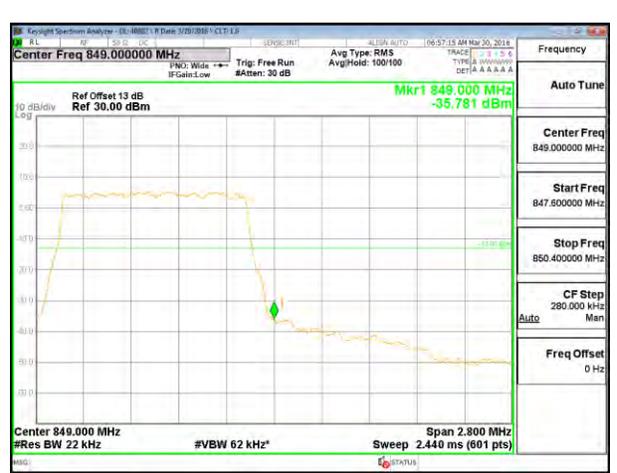
LTE B5 1.4MHz QPSK Low Channel 1RB



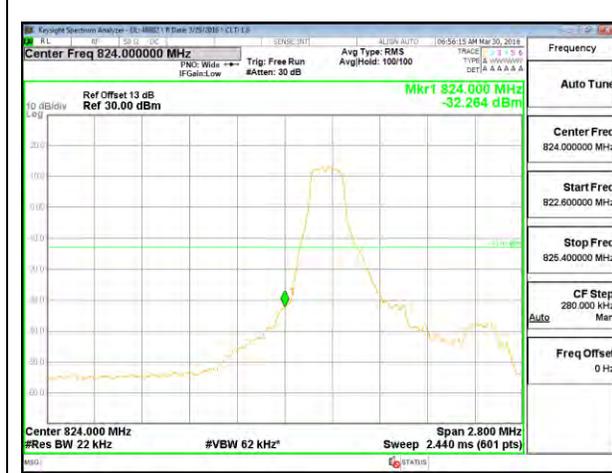
LTE B5 1.4MHz QPSK High Channel 1RB



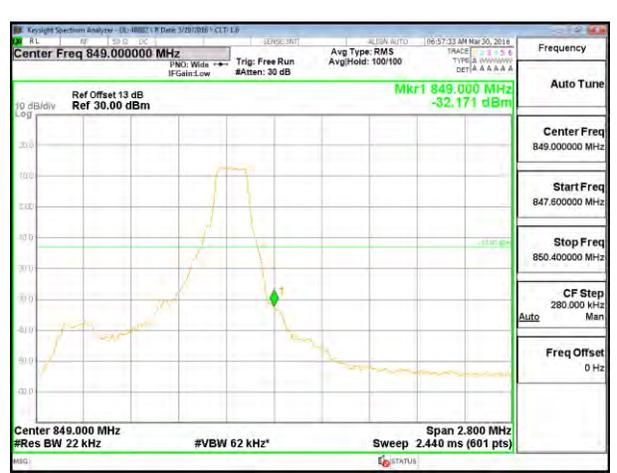
LTE B5 1.4MHz QPSK Low Channel FRB



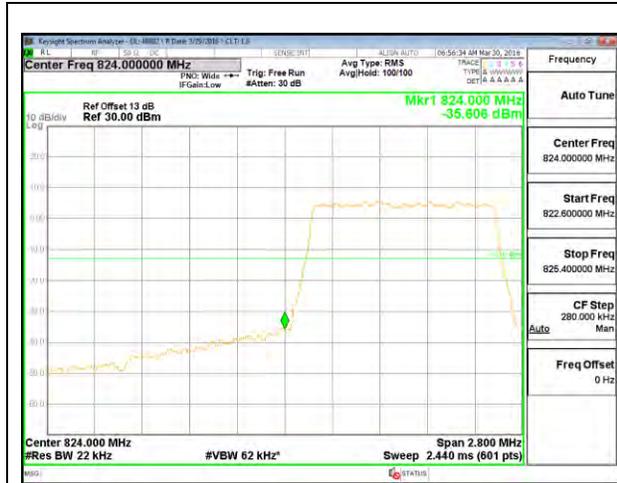
LTE B5 1.4MHz QPSK High Channel FRB



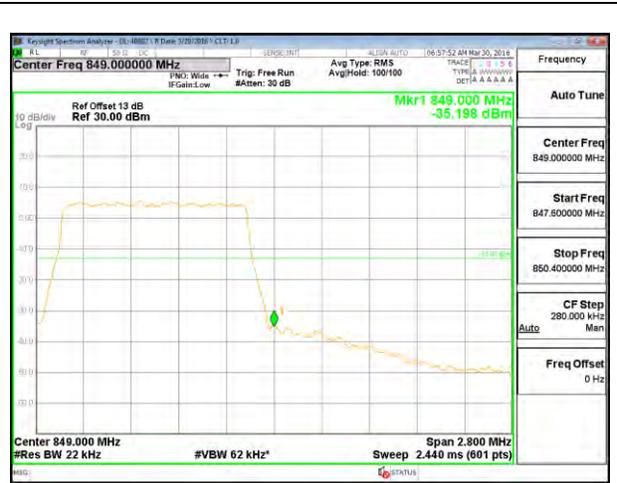
LTE B5 1.4MHz 16QAM Low Channel 1RB



LTE B5 1.4MHz 16QAM High Channel 1RB



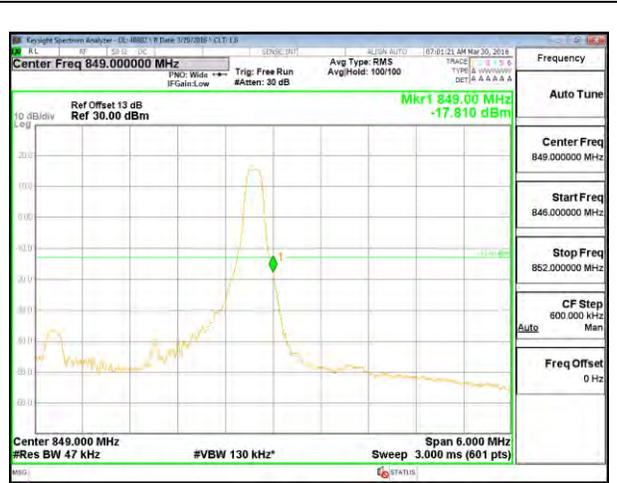
LTE B5 1.4MHz 16QAM Low Channel FRB



LTE B5 1.4MHz 16QAM High Channel FRB



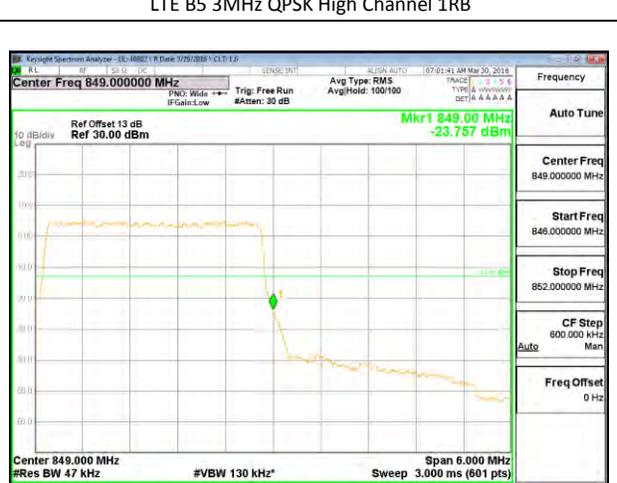
LTE B5 3MHz QPSK Low Channel 1RB



LTE B5 3MHz QPSK High Channel 1RB



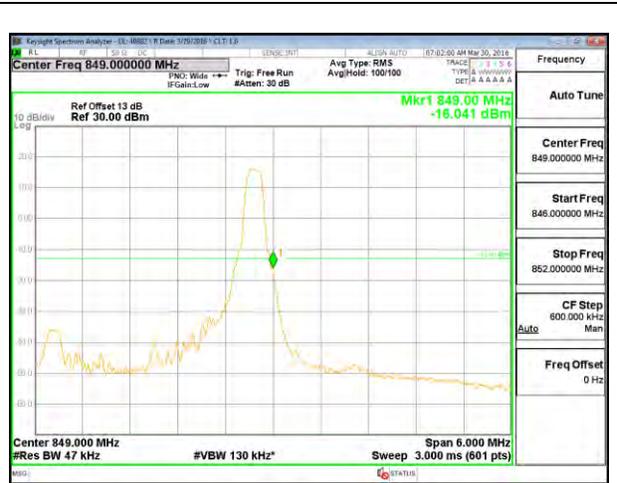
LTE B5 3MHz QPSK Low Channel FRB



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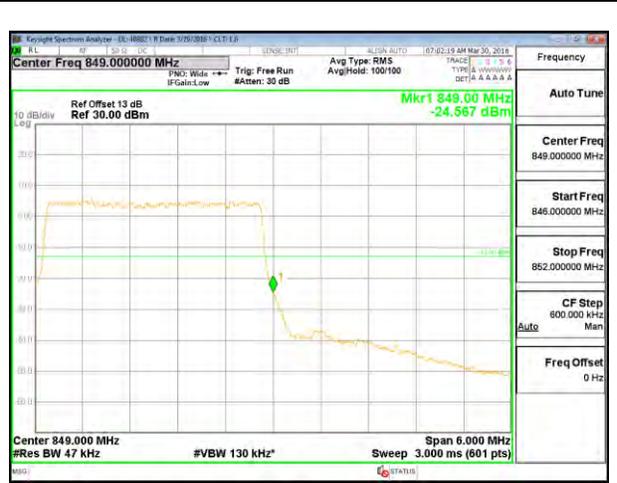
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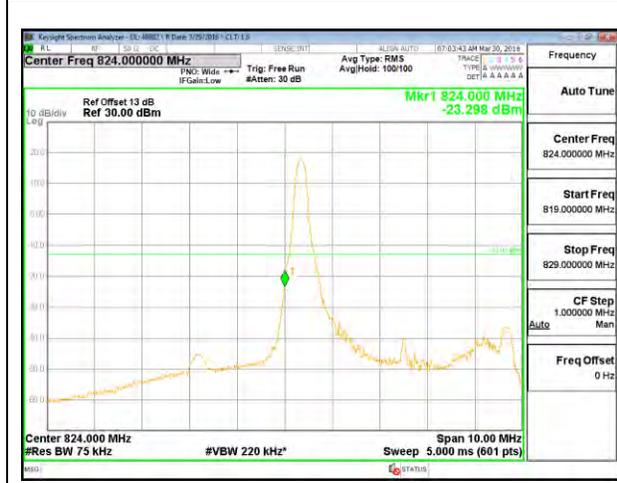
LTE B5 3MHz 16QAM High Channel 1RB



LTE B5 3MHz 16QAM Low Channel FRB



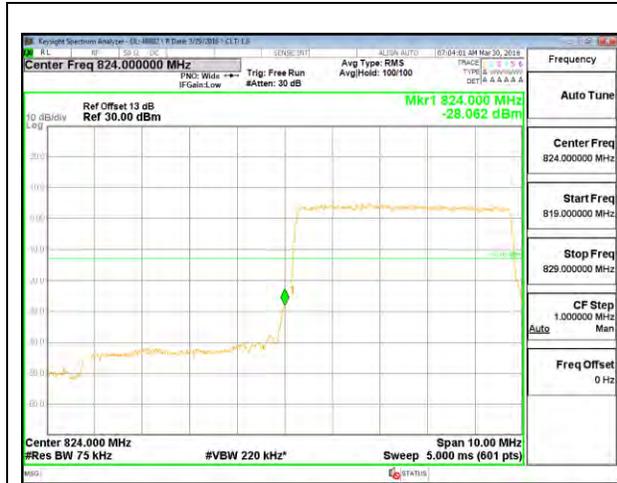
LTE B5 3MHz 16QAM High Channel FRB



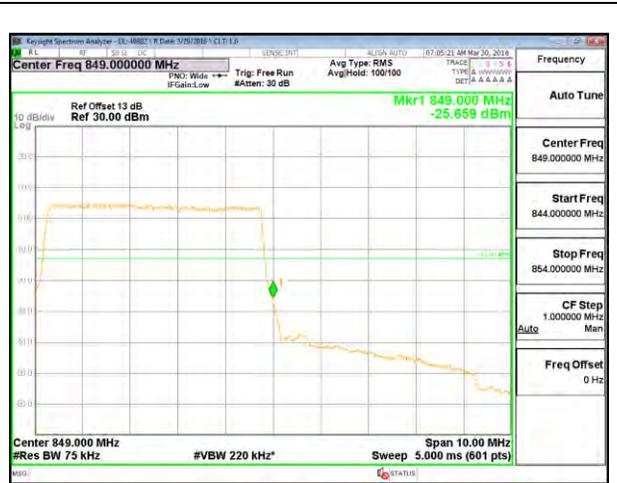
LTE B5 5MHz QPSK Low Channel 1RB



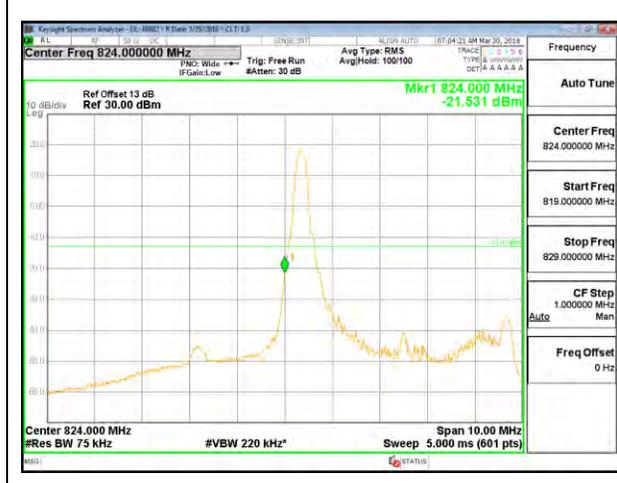
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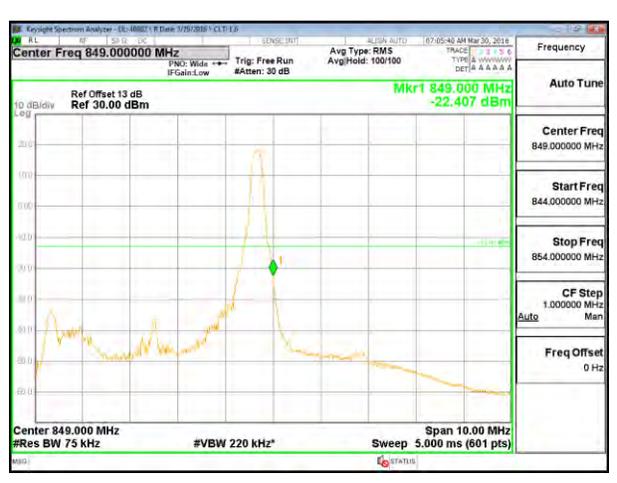
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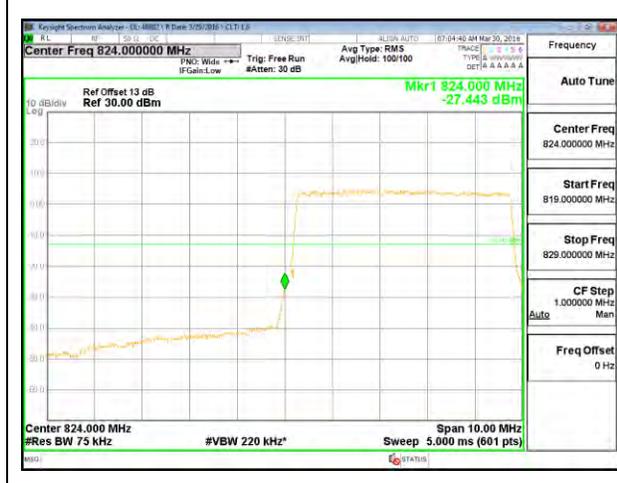
LTE B5 5MHz QPSK High Channel FRB



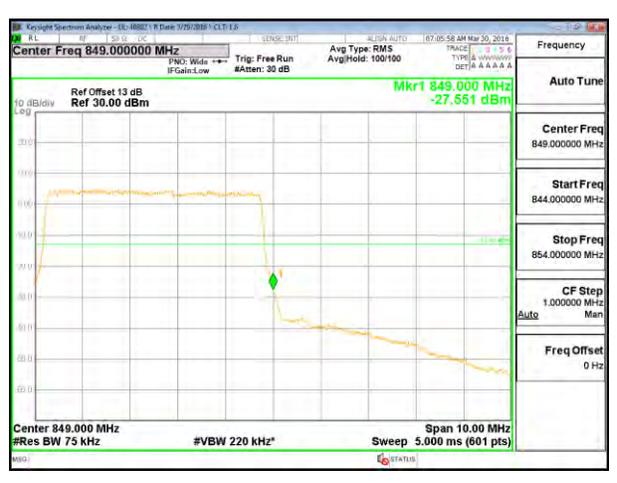
LTE B5 5MHz 16QAM Low Channel 1RB



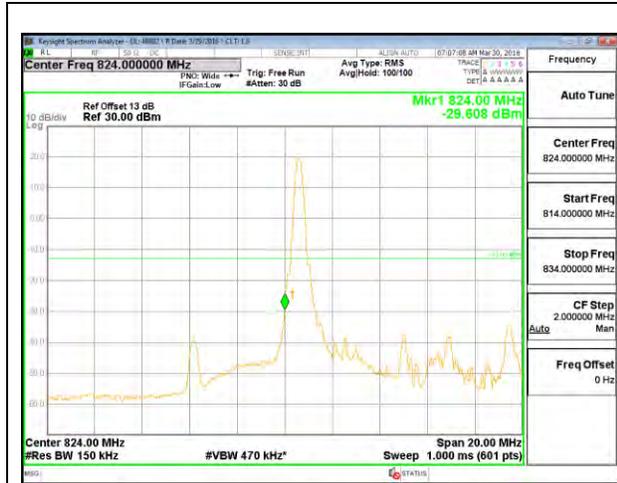
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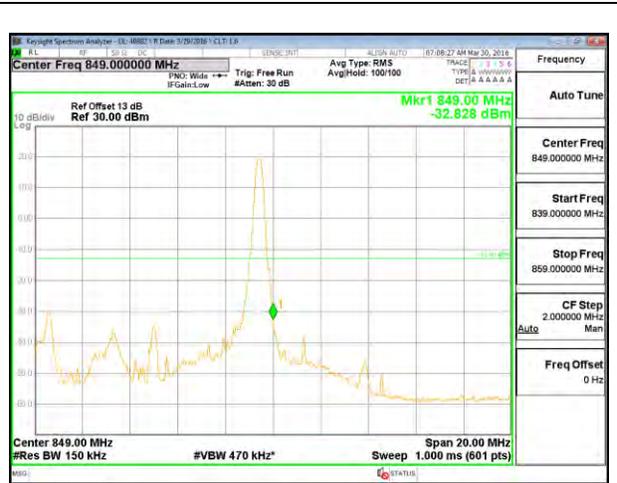
LTE B5 5MHz 16QAM Low Channel FRB



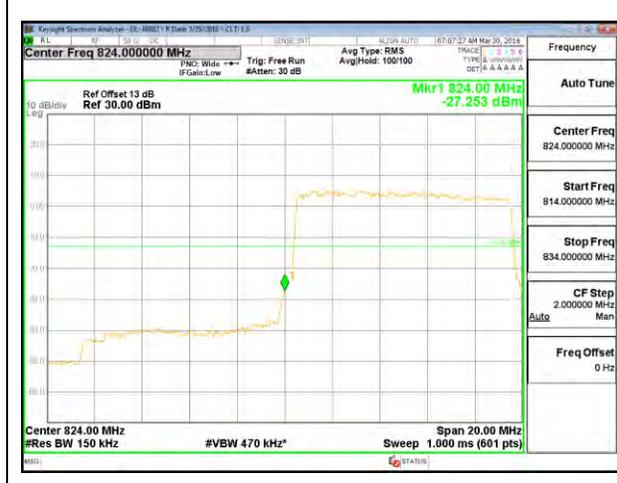
LTE B5 5MHz 16QAM High Channel FRB



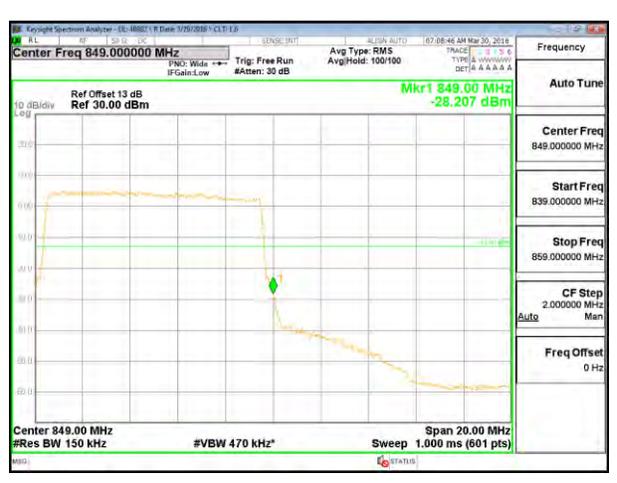
LTE B5 10MHz QPSK Low Channel 1RB



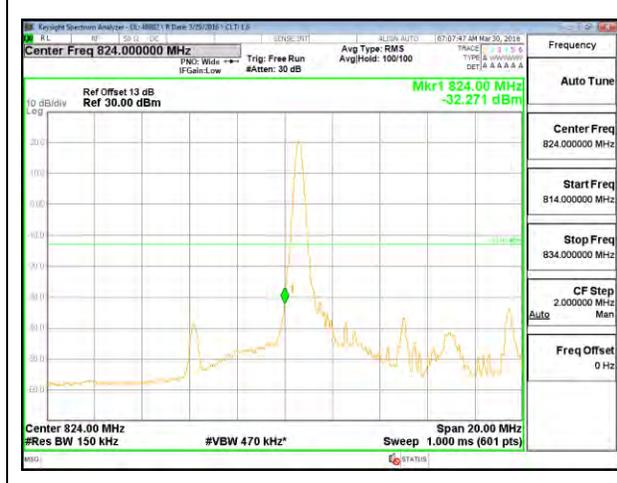
LTE B5 10MHz QPSK High Channel 1RB



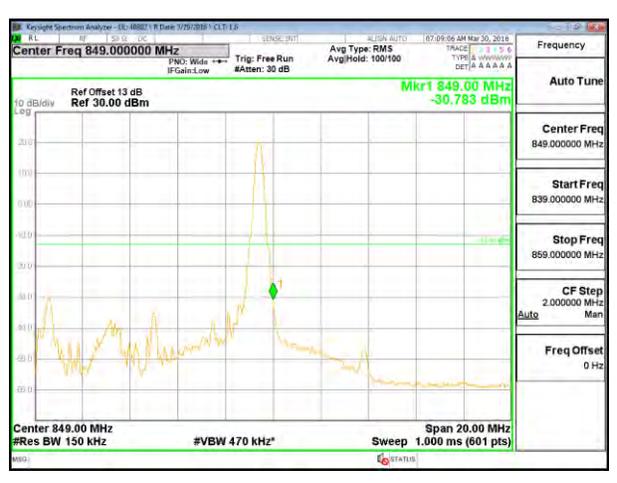
LTE B5 10MHz QPSK Low Channel FRB



LTE B5 10MHz QPSK High Channel FRB



LTE B5 10MHz 16QAM Low Channel 1RB



LTE B5 10MHz 16QAM High Channel 1RB